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STATE COLLEGE OF AGRICULTURE

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COURSES IN THE COLLEGE OF AGRICULTURE

The New York State College of Agriculture provides the following courses of instruction under the rules and regulations that follow:

1. **Admission.** There is no examination for admission, but applicants must satisfy the instructors in charge of the courses which they seek to enter that they are qualified to pursue the work of the courses.

2. **Attendance and Registration.** Students must conform to the regulations on page 6 and 7 of the announcement of the Summer Session for 1916.

3. **Tuition and Fees.** Tuition in any of the courses following is free to residents of New York State, and to students registered in the Graduate School for graduate work in Agriculture only. All others will pay a tuition fee of $30 whether one subject or more is taken. For the time and place of payment, see page 7 of the Summer Session Announcement.

In some of the courses a fee to cover the cost of materials used will be charged. Fee cards must be procured from the instructor at the first exercise, and returned to him receipted within five days.

4. **Academic Credit for Work.** For the requirements for the degree B.S. (8 terms, 120 hours, etc.) see the Announcement of the College of Agriculture. For graduate work, see page 8 of the Announcement of the Summer Session for 1916.

ANIMAL HUSBANDRY

A. **Principles and Practice of Feeding Animals.** Credit two hours. Lectures, M W F, 10. Practice, T Th, 10–12:30. Animal Husbandry Building. Mr. BAKER.

The general principles of animal nutrition, based on Jordan's Principles of Human Nutrition as a text. The discussion of these principles will occupy most of the time given to lectures. The practice of feeding animals, based on Henry's Feeds and Feeding as a text. The discussion of the practice of feeding horses, cattle, sheep and swine, will occupy most of the time given to laboratory work, which will also include the study of feeding standards, the study of about forty home-grown and commercial feeds, the formulation of rations, and the like.

B. **Principles of Animal Breeding, and Elementary Judging.** Credit, three hours. Lectures, daily except S, 9. Laboratory T Th, 2–4:30. Animal Husbandry Building. Mr. MEADE.

A general discussion of the principles of heredity as applied to the breeding of animals, with a study of animal form; origin and formation of breeds; crossing and grading, with an outline of the methods of registration and the study of records and pedigrees. Demonstrations, essays, and reports will be required in addition to the lectures.

The laboratory work will include practical handling of animals and methods of scoring and judging. Types and several breeds, particularly of dairy cattle, will be illustrated.

BIOLOGY

A. **General Biology.** Credit, three hours. Lectures daily except S, 11. Roberts Hall 392. Laboratory and field work, sec. A, M W F, 2–4:30 sec. B, T Th, 2–4:30, S, 8–10:30. Roberts Hall 302. Professor JOHANNSEN and Mr. ———.

This is an elementary course designed to acquaint the general student and the prospective teacher with the principal ideas of biology through selected practical studies of the phenomena on which biological principles are based. Laboratory fee, $2.50.

H. **Aquiculture.** Credit, one hour. Lectures T Th, 9. Roberts Hall 392. Assistant Professor EMBODY.

A series of lectures relating to the propagation of fishes and other useful aquatic organisms, and the conservation of our aquatic resources.

BOTANY

The courses in botany are planned to meet the needs of high school and college teachers, as well as to furnish information for persons not intending to teach.

The work will consist of lectures, laboratory work, and field work. The lecture and classroom work will be suppl emented by lantern slides, charts, microscopes, slides, museum and herbarium material. It is likely that some round-table discussions will be arranged.

The region about Ithaca is especially rich in plant life. Rarely, if ever, is a locality found that is better adapted for summer field work in botany. The richness of the fungous and the algal floras, as well as the great number of mosses, liverworts, ferns and flowering plants, render field work here especially attractive and valuable. Special attention is given to the field botany, although other phases of the work are not ignored.

The country in the vicinity of the University is very diversified; marshes, fields, woodlands, ravines, and bogs all being accessible for day trips. Many short field trips will be taken and three longer all-day trips. Each student in course A, B, D, E, H, I, and J is expected to take at least two of the three all-day trips. The all-day trips will occur on Saturdays and will entail an extra expense of 50 cents to $1.50 for each; one of the trips will cost $2.50.

Some of the excursions will be in rough and wild localities, and clothing suitable for such trips should be provided. Women are strongly advised to wear the bloomer costume, which, however, must be approved. During recent years this costume has been very generally worn for such work. For one trip indeed, which, however, is not definitely required, the bloomer costume is really a necessity.

A. **Elementary Botany.** Credit, three hours. Lectures, M W, 8. Laboratory, M W, 9–1, F, 8–1 with additional reading or field work. Botanical Laboratory, Agronomy Building. Professor FAULL and Mr. DUFF.

Representative plants from all the larger plant groups will be studied. Emphasis will be placed on structure and life history with particular attention to evolutionary relationship. Some attention will be given to the economic aspects of the different groups, and to their adaptation to surroundings. Field work will replace laboratory hours to a limited extent and some all-day trips will be required.

This is a general course planned as an introduction to the study of botany and as a preparation for advanced courses. It is intended also to cover certain phases of college entrance requirements and of general secondary school botany. Laboratory fee, $3.50.

B. **Elementary Morphology of Seed Plants.** Credit, one hour. Lectures T, 2–3. Laboratory T, 3–5:30, Th, 2–4:30, with some additional reading. Botanical Laboratory, Agronomy Building, Professor FAULL and Mr. DUFF.

A study of the variation in form and structure of roots, stems, leaves, flowers, fruits, and seeds, together with the terminology concerned, and the advantages of these variations. Modified plant parts, pollination, and seed dissemination will receive attention. Fundamental internal structure will be briefly treated. Laboratory and field studies, conferences, recitations, and reading.

The course is arranged somew hat after the plan of Gray's Lessons in Botany, and is designed as a preparation for systematic field botany and for persons desiring a general knowledge of the common plants. It also covers certain phases of secondary school botany. Identification is not a feature of this course. Laboratory fee, $2.

C. **General Plant Physiology.** Credit four hours. Prerequisites: all freshman work or its equivalent, and general botany. Lectures, daily, except S, 9.

Laboratory, daily except S, 10–1:30. Agronomy Building. Assistant Professor KNUDSON and Mr. KNOWLTON.

Lectures, recitations, laboratory work, reports, and occasional field studies. Topics include absorption, conduction, transpiration, metabolism, relation to environment, growth, reproduction, and propagative processes. Laboratory fee, $6.

D. **Identification, Classification, and Ecology of the Higher Plants**. Credit, two hours. Prererquisite: some training in structural botany taken previously or in connection with this course. Lectures Th, 8. Laboratory or field, T, 8–1, Th, 9–1. Botanical Laboratory, Agronomy Building. Professor WIEGAND.

A comprehensive study of the wild flora about Ithaca, with reference to the practical recognition of species and varieties as well as to the floral and foliar characteristics of these species and to the grouping of them into genera, families, and more comprehensive groups. The course consists of field and laboratory work, but is supplemented by general discussions and lectures on the broader questions of classfication, nomenclature, distribution, and habitat. The ecological association and modifications of the various species and varieties will be noted. The course is intended to supply teachers and others with a general knowledge of the flora. Some all-day trips are required. Supplementary instruction will be given in the preservation of material for the museum and for the herbarium.

If necessary this course will be divided as follows: A. For those beginning this type of work. B. For students who already possess some knowledge of the flora. Laboratory fee, $2.50.

E. **Trees and Shrubs**. Credit, two hours. Prerequisite: some training in structural botany, taken previously or in conjunction with this course. Lectures W, 2. Laboratory or field work M, 2–5, W, 3–5, F, 2–5. Agronomy Building. Mr. MACDANIELS and Mr. METCALF.

A course intended for those who desire more concentrated work on the woody plants of our flora than can be obtained in course D. The aim is to familiarize the student with as many as possible of the trees and shrubs in the Cayuga Lake flora, their floral and foliar characters, their structure, methods of growth, habits, and distribution. Much of the work will be in the field, supplemented by laboratory practice, lectures, and demonstrations. Some all-day trips are required. Laboratory fee, $2.50.

H. **Identification and Classification of Lichens, Liverworts, Mosses and Ferns**. Credit, one hour. Prerequisite; a general knowledge of structural botany. Laboratory and field work, T. Th, 2–5, with some additional work by appointment. Botanical Laboratory, Agronomy Building. Professor WIEGAND and Assistants.

An introduction to the four groups of plants indicated by the title of the course. The student will become acquainted with the general structural characteristics of different members of these groups, and will receive practice in tracing the various species through the keys. The field trip is planned to acquaint students with the flora of our ravines and swamps which is especially rich in lichens, liverworts, mosses and ferns. Material will be collected, identified, mounted in standard packets and will become the property of the student. Some all-day trips are required. Laboratory fee, $2.

(The following courses are given under the direction of the Department of Plant Pathology)

I. **Parasitic Fungi**. Credit, two hours. Prerequisite general introductory botany. Lectures M W, 8. Laboratory or field work M W, 9–1. Bailey Hall. Professor JACKSON.

This course is designed to cover the general field of parasitic fungi and related forms, especial emphasis being placed on collection and identification as well as upon disease producing characteristics. Teachers will find these courses in fungi helpful in providing facts and materials for use in their work. Fee $3.

J. **Fleshy Fungi.** Credit two hours. Prerequisite general introductory botany. Lecture F, 8. Laboratory or field work F, 9–1, 2–5:30, with some additional reading or field work. Bailey Hall. Professor JACKSON.

This course is planned to give a general knowledge of the so-called mushrooms, toadstools, and allied forms. Particular attention will be given to the collection, identification and classfication of the species growing about Ithaca. Fee $3.

CHEMISTRY

A. **Agricultural Chemistry.** Credit, four hours. Prerequisite: Chemistry 1, or its equivalent. Lectures, daily, 8. Caldwell Hall 100. Recitations, M W F, 9. Caldwell Hall 143. Professor CROSS.

A general course treating of the relations of chemistry to agriculture. The following are among the subjects discussed: the chemical composition of agricultural plants and plant by-products; the chemical composition of soils; some chemical relations between the organic and the inorganic matter of soils; sources, preparation and manufacture of the materials used in fertilizers; the chemical relations of lime to soils; the chemistry of insecticides and fungicides.

B. **Agricultural Chemistry.** Credit, two hours. Prerequisite Chemistry 1 and 6, or the equivalent. M W F, 11–1; 2–4:30. Assistant Professor RICE. Quantitative Laboratory.

A laboratory course designed to accompany course A. Laboratory deposit, $15.

C. **Household Chemistry.** Credit, two hours. Prerequisites: Chemistry 1 and 6, or the equivalent. Lectures, daily except S, 10. Caldwell Hall 100. Professor CROSS.

This course is designed especially for students in home economics. It treats of the chemistry of foods, beverages, baking chemicals, preservatives, and detergents.

D. **Household Chemistry.** Credit, two hours. M W F, 11–1; 2–4:30, S, 8–1. Quantitative Laboratory. Assistant Professor RICE.

A laboratory course designed to accompany course C. Laboratory deposit $15

DAIRY INDUSTRY

A. **Milk Composition and Tests.** Credit, three hours. Lectures, daily. except Saturday, 8. Dairy Building 222. Laboratory, M W F, 2–4:30. Dairy Building 232. Professor Ross and Mr. MCINERNEY.

This is equivalent to course 1 of the regular university year. The topics considered are the secretion and composition of milk, sampling, the use of the lactometer, the Babcock test for fat, acid tests, moisture tests, salt tests, tests for preservatives and adulterations. Laboratory deposit, $3.

DRAWING

A. **Mechanical Drawing.** Credit, two hours. Eighteen hours work a week will be required for each hour of credit. Laboratory periods to be arranged before registration. Dairy Building 341. Mr. REYNA.

This course will include the following groups: 1, Inclined Gothic Lettering. A brief course, devoting special attention to the upper-case letters. 2, Orthographic Projection. A study of the principles with a few problems involving the more common applications. 3, Isometric Drawing. A study of its derivation, application and limitations. Geometric and simple cabinet problems will be solved. 4, Mechanical Drawing. A course familiarizing the student with the proper use of symbols, dimensions and sections as applied to simple problems. One complete mechanical drawing plate will be executed. 5, Farm Boundaries. One plate with two problems involving the use of the protractor in conjunction with traverse data. 6, House Planning. The student is familiarized with definitions and terms, and with the principles of interpretation of floor and roof plans and elevations, with simple applications including individual designs of floor and

roof plans and of a complete bungalow. One tracing will be made from each group. The proper use of drawing instruments, with the practice of accuracy and neatness, is the essential feature of this course.

ENTOMOLOGY

A. **Insect Life.** Credit, two hours. Lectures, T Th, 8. Practical exercises T Th and F, 2–4:30. Roberts Hall 391. Miss STRYKE and ———.

This is a course especially designed for public school teachers. It will deal with the more interesting and important groups of insects. The practical exercises will be devoted to such work as may be done in any school with little equipment. The development and the activities of insects will be emphasized.

More advanced students in the summer session, who desire laboratory work of college grade, may register for one or both of the following courses which are equivalent to the long term courses.

D. **Elementary Morphology of Insects.** Credit, three hours. Laboratory open daily except S, 8–5. Twenty-one hours of laboratory work per week required Roberts Hall 391. Summer session, Mr. FROST.

An introductory laboratory course required of all students who plan to do advanced work in entomology. Laboratory fee, $2.

F. **Elementary Systematic Entomology.** Credit two hours. Fifteen hours of laboratory work per week required. Must be preceded or accompanied by course 4. Laboratory open daily except S, 8–5. Roberts Hall 391. Summer session, Mr. FROST.

Practice in the identification of insects, and in the method of phylogenetic study as illustrated by their wing venation. With course 4, required of all students who plan to do advanced work in entomology. Laboratory fee, $3.

Members of the summer session may attend, in Roberts 392, Professor Needham's long-term course in the Ecology of Insects (Course 2: Lecture W. 8) or Professor Matheson's course in General Entomology (Course 3: Lecture W F, 9) without credit.

FLORICULTURE

A. **Garden Flowers.** Credit, one hour. Lectures, T Th, 8. Laboratory, F, 2–4:30. Greenhouses. Professor LUMSDEN and Mr. THAYER.

This is designed as an elementary course to be of value for home flower garden or school garden work. It is outlined so as to acquaint students with the most valuable material for this line of work, and to cover methods of propagation and culture.

B. **Indoor Flower Growing.** Credit, one hour. Lectures, M W, 10; Laboratory, S, 8–10:30. Greenhouses. Mr. THAYER.

The propagation and culture of plants suitable for winter gardens in school rooms, including a study of containers, soils, fertilizers, insecticides, is the basis of this course. The selection of varieties of bulbs and their methods of culture indoors is also considered, as is also the method of propagation and general care of species of plants suited for indoor culture.

HOME ECONOMICS

This work is intended for persons desiring to teach, but is suited to others desiring to study the principles of home making.

A. **Survey Course in Foods.** Credit, four hours. Lectures and recitations, daily except S, 12. Home Economics Building 245. Laboratory practice, daily except S, 2–5 or 8–11. Home Economics Building 200. Written review for those wishing credit in this course S, 12. Misses VINTON and MOSES.

A course for giving a general knowledge of foods to those not having had a foundation of science. The lectures will include a discussion of the sources, composition, and characteristics of food-stuffs; principles governing the selection of foods and methods of preparing them; food preparation and preservation; table-setting and serving; comparative nutritive values and cost of various foods.

The laboratory work will follow the lectures closely, and will consist of practical problems in the preparation of food for the table. Laboratory fee, $7.50.

B. **Foods.** This course is planned to meet the needs of students wishing to make an intensive study of foods. It will be given in two parts B^1 and B^2 during two successive summer schools. Chemistry A (elementary inorganic chemistry) or its equivalent is prerequisite to this course. Chemistry K (organic chemistry) or its equivalent, must precede or accompany this course.

B^1 **Elementary Course in Foods.** Credit, four hours. Lectures and recitations, daily except S, 9. Home Economics Building 245. Laboratory practice, daily except S, 10–1. Home Economics Building 200. Misses VINTON, KNOWLTON, and MOSES.

A course for establishing a fundamental knowledge of foods. The lectures will include a discussion of the sources, composition, and characteristics of food-stuffs; principles governing the selection of foods and methods of preparing them; comparative nutritive values and cost of foods. The laboratory work will follow the lectures closely, and will consist of experiments in determining the characteristics of food-stuffs and practical problems in the preparation of food. Laboratory fee, $7.50.

B^2. **Advanced Course in Foods.** Credit four hours. This course will not be given until the summer of 1917.

A continuation of B^1 which must precede this course.

C. **Human Nutrition.** Credit, three hours. Lectures and recitations, daily except S, 9. Home Economics Building 100. Laboratory practice, T Th, 2–5:30. Home Economics Building 200. Written reviews for those wishing credit in the course S, 11. Professor ROSE and Miss KNOWLTON.

This course will include discussion of the fundamental principles of nutrition as these apply to the human being; the practical means of applying scientific principles in planning dietaries; special problems of nutrition, as the feeding of infants and children. The laboratory work will consist of exercises in determining the comparative cost and nutritive value of various foods; in planning and judging various types of dietaries; in preparing typical meals. Open only to students who have had course A or its equivalent. Laboratory fee $6.

D. **Household Management.** Credit, two hours. Lectures, daily except S, 8. Home Economics Building 100. Elective laboratory S, 9–12. Home Economics Building 400. Written reviews for those desiring credit in the course S, 8. Professor VAN RENSSELAER and Miss KNOWLTON.

Lectures will discuss division of income, household accounts, factors in cost of living from the housekeeper's standpoint, domestic service, household equipment, means for saving labor and general management of the house.

E. **Extension in Home Economics.** Credit, three hours. Conference to be arranged. Home Economics Building 265. Professor VAN RENSSELAER and Miss BREWER. Laboratory fee $3. In addition there will be the expense of travel to nearby places.

The course embraces a discussion of the history of Home Economics extension, legislation, project making; practice with criticism in presentation of subject matter and demonstrations; office detail in extension enterprises. Practice in the field will be offered to those who are qualified for extension work. To others opportunity will be given for observation.

This course is offered to meet a growing need for trained extension workers. It is planned especially for those persons who already have knowledge of home economics subjects to extend, and who wish to familiarize themselves with channels through which extension work may be carried and with methods of extension teaching. Persons having had previous training in home economics may find it an advantage, however, to take courses in home economics as a review of subject matter.

Other persons may be admitted to this course if they can show special qualifications which will adapt them to extension work. Such students must choose some special subject-matter courses in home economics to be taken simultaneously with Course E.

The following combinations are suggested to constitute a full program: Extension in Home Economics, foods, household management. Extension in Home Economics, nutrition (for those eligible), household management. Extension in Home Economics, foods (lectures), nutrition (lectures). Extension in Home Economics, sewing, foods (lectures). Extension in Home Economics, sewing, household management. Extension in Home Economics, sewing, nutrition (lectures).

Information regarding courses in Home Economics may be obtained by addressing the Department of Home Economics.

F. **Institution Management.** Credit, four to six hours. Lectures daily, 8. Home Economics Building 245. Laboratory daily, all morning or all afternoon or both. Home Economics Cafeteria. Miss HUNN and Miss MOSES. No candidates may register for this course without giving satisfactory evidence of their fitness, through previous Home Economics training or experience, to carry the work.

The lectures of this course will include discussion of large quantity buying, marketing, menu making, institution plans and equipment, organization of work and workers, institution accounting. The laboratory work will consist in part of large quantity cooking, special cooking as for tea rooms, practice in the Home Economics Cafeteria, the Forest Home Tea Room, and the University Club. Laboratory fee $5 to $10.

G. **Elementary Clothing and Handwork.** Credit, two hours. Laboratory daily except S, 8–11 or 2–5. Registration in each section limited to eighteen. Home Economics Building 300. Miss BLACKMORE and Miss PITNER.

This course includes the following subjects: the use and care of the sewing machine; making of stitches by machine and hand; elementary drafting and adapting of patterns; cutting, fitting and finishing simple undergarments; knitting, crocheting, and simple embroidery.

Students provide all material subject to the approval of the instructor. Approximate cost, five to eight dollars. This course or its equivalent is prerequisite to all dressmaking courses. Laboratory fee $2.

H. **Elementary Dressmaking.** Credit, two hours. Prerequisite—Course G or its equivalent. Laboratory daily except S, 2–5. Registration in this course is limited to eighteen. Home Economics Building 300. Miss BLACKMORE, and Miss PITTNER.

This course includes consideration of the following subjects: the cutting and making of a waist with an applied collar and set in pocket (middy blouse); simple drafting to be used in the making of a cotton dress; a wool skirt and silk waist using commercial patterns. Demonstrations, discussions and practical work. The comparison of commercial products with those made by hand.

Students provide all material subject to the approval of the instructor.

Laboratory fee $2.

I. **Textiles and Elementary Design.** Credit, two hours. Lectures T Th, 10. Home Economics Building 300. Laboratory, M W F, 10–1. Home Economics Building 300. Miss BLACKMORE. Registration in this course will be limited to eighteen.

This Course includes:

(a) A simple history of the processes of manufacture: spinning, weaving, and finishing of cotton, wool, silk and linen.

(b) An intensive study of fabrics with a view to their appropriateness in clothing. Analysis of weaves and making of textile cards.

(c) Microscopic identification and chemical testing of fabrics. Composition and characteristics of adulterants.

(d) Some consideration of costume design.

Laboratory fee $2.

LANDSCAPE ART

C. **The Arrangement of Home and School Grounds.** Credit, one hour. Lecture, F, 8. Laboratory, T Th, 2–4:30. Landscape Art Building. Assistant Professor CURTIS.

An introductory course consisting of illustrated lectures to explain some fundamental principles and of field trips to identify and explain the use of important landscape plants. The purpose of this course is to give the students a point of view in landscape work and, in addition, to offer some specific suggestions for the solution of simple problems.

METEOROLOGY

A. **Meteorology and Climatology.** Credit, one hour. Lectures M W, 9. Laboratory period by appointment. Mr. HAUSMAN Room 107, Rockefeller Hall. (For laboratory assignment report at Room 107 at first lecture period).

This course is adapted to the needs of teachers of those subjects in which weather and climate are important factors, particularly physical geography and allied subjects. It is designed to acquaint the student with the general and secondary circulation of the atmosphere, and with the development, progression, and conditions that attend cyclones, tornadoes, hurricanes, and other special phenomena. The principles of meteorology are applied to practical weather forecasting by the aid of the telegraphic reports received through the United States Weather Bureau.

The laboratory practice consists of a systematic study of the principal weather and climatic elements, with the aid of maps, charts, and instruments. Attention is also given to the study of the progression of the seasons.

NATURE STUDY

A. **General Nature Study.** Credit, two hours. Lectures, M W F, 10. Field and laboratory observations, T Th, 10–12:30. Roberts Hall 302. Assistant Professors COMSTOCK and EMBODY.

The object of this course is to train teachers in making personal observations along several lines of nature study and to give them a foundation for carrying on the work independently. As many as possible of the laboratory periods will be spent in the fields in the study of birds, trees, and plants. Special attention will be given to observing the relation of insects to flowers of field and garden. The lectures will supplement the field and laboratory work, and will also present practical methods for conducting nature study in the grades, including plans for breeding cages and aquaria; and one lecture will be given each week on nature literature.

B. **Natural History of the Farm.** Credit, one hour. Lectures M, 8. Roberts Hall 392. Field work, sec. A, T Th, 2–5; sec. B, W F, 2–5. Assistant Professor EMBODY.

This is primarily a field course, treating of the wild inhabitants of the fields, woods, marshes, and streams of the farm. Wild organisms will be compared with domesticated ones, and the availability of certain wild forms for cultivation will be pointed out.

The following topics, among others, will be studied: wild fruits, wild roots, wild cereals, deciduous trees, evergreens, pasture plants and their fitness for pasture conditions, wild birds, wild mammals, and fishes and other inhabitants of the farm stream.

Each student will be required to do a considerable part of the work individually Field reports must be handed in weekly and these will be carefully graded. Laboratory fee, $1.

H. **Seminary in Kindergarten Methods in Nature Study.** M, 2. Insectary.

Intended primarily for those taking course A above. A conference on methods of presenting nature study materials to small children. Assistant Professor COMSTOCK.

PLANT BREEDING

A. **Principles and Practice of Plant Improvement.** Credit, one hour. Lectures, T Th, 8. Laboratory and field practice, T, 2–4:30. Forestry Building 210. Assistant Professor BARKER.

This is an elementary course designed primarily for teachers. The laws underlying plant breeding, variation, hereditary and general evolution will be considered carefully. The course will be made as practical as possible and will give specific information for the teaching of plant breeding in elementary and high schools. Ample opportunity will be given for making hybrids, collecting specimens of variations in wild and cultivated plants, and similar exercises that have proved valuable and interesting to school children. Laboratory fee, 50 cents.

POMOLOGY

A. **General Fruit Growing.** Credit, three hours. Prerequisites Botany 1, or its equivalent. Lectures and recitations daily at 11. Roberts Hall 292 Laboratory, M W, 2–4:30. Roberts Hall 202. Mr. HEINICKE.

A study of the methods of propagation and early care of commerical fruits, including the growing of seedlings, cuttings, and layers; principles of budding, grafting, pruning, and planting; soils, varieties, and planting plans for the orchard; cultivation, cover crops, fertilization, spraying, pruning and thinning, as practiced in orchard management; picking, grading, packing, storing, and marketing of fruit. This course considers the apple, pear, quince, cherry, plum, apricot, peach, nuts, and small fruits.

B. **Advanced Pomology.** No credit toward graduation. Prerequisites: Botany 1 and Pomology A, or the equivalent. Lectures, T Th S, 9. Roberts Hall 292. Mr. HEINICKE

This course includes a comprehensive study of varieties and judging of fruits and a study of the characters and botanical relationships of the fruits of the United States. Each student is required to collect and mount a number of varieties and species. A trip to Geneva will occupy one afternoon or a Saturday sometime during the course.

POULTRY HUSBANDRY

A. **The Care and Management of Poultry.** Credit, four hours. Lectures daily, 9. Poultry Building 375. Laboratory T Th F, 2–4:30. Poultry Building 300. Assistant Professor BENJAMIN and Messrs. KENT and BREWSTER.

Designed primarily for teachers of Agricultural High Schools and other secondary agricultural schools. The course consists of 36 lectures and preliminary examinations, and 18 laboratory practice periods as they would be taught in one term of High School, and includes a general discussion and practical application of the principles of incubation; brooding; rearing; feeding; breeding for constitutional vigor, egg production, and fancy; marketing; housing; and general poultry farm management. Laboratory fee $3.

B. **Farm Poultry.** Credit, one hour. Lectures, M W, 10. Poultry Building 375. Laboratory Th, 2–4:30. Poultry Building 300. Assistant Professor BENJAMIN and Messrs. KENT and BREWSTER.

An abbreviated course dealing with the most important principles of Poultry Husbandry and their application on the farm. Laboratory fee $1.

C. **Feeding Practice.** Credit, one hour. Must be accompanied by course A or B. Practice three 30 minute periods per day, including Sunday, for six weeks; morning 7:30–8:15; noon 12:45–1:30; night 4:30–5:00. Poultry Building. Mr. DANN and Mr. ANDREWS.

Practice in feeding for egg production and for fattening; includes preparation for market, record-keeping, and general care and management of fowls. Assigned reading and a written examination will be required. Laboratory fee $1.

D. **Incubating Practice.** Credit, one-half hour. Must be accompanied by course A or B. Practice three 30 minute periods per day, including Sunday for three weeks; morning 7:30–8:15; noon 12:45–1:30; night 4:30–5:00. Poultry Buildings. Mr. BUCHAN.

Practice in operating incubators; disinfecting, keeping record testing eggs, and general management of the hatch. Assigned reading and a written examination will be required. Laboratory fee $1.

E. **Brooding Practice.** Credit, one-half hour. Must be accompanied by course A or B. Practice three 30 minute periods a day, including Sunday, for three weeks; mornings 7:30–8:15; noon 12:45–1:30; night 4:30–5:00. Poultry Buildings. Mr. BUCHAN and Mr. KOPMAN.

Practice in feeding, brooding, and caring for young chicks; keeping of temperature, food and growth records. Assigned reading and a written examination will be required. Laboratory fee $1.

RURAL ECONOMY

A. **Economic and Social Status of the Rural Community.** Credit, two hours. Prerequisites: for regular students, senior standing and Political Science 51; for Summer School students, the permission of the Department. Lectures and required reading, daily except S, 10. Agronomy Building 192. Professor LAUMAN. Not accepted as a substitute for course 4 during the regular academic year.

A fundamental, though brief, survey of the structure and functioning of the rural community with particular reference to American conditions.

B. **Marketing and Prices.** Credit, two hours. Prerequisites: for regular students, senior standing and Political Science 51; for Summer School students, the permission of the Department. Lectures, required reading and problems, daily except S, 12. Caldwell Hall 143. Professor LAUMAN.

A study of the factors involved in the marketing of products, particularly farm products, and the development and course of prices.

RURAL EDUCATION

B. **Agriculture in the High School.** Credit, three hours. Lectures and discussions, daily 8. Caldwell Hall 282. Laboratory M W, 2–4:30, repeated T Th, 2–4:30. Professor WORKS.

A course for consideration of curricula, courses of study, school plot, home project, extension work and the preparation of material, as they relate to secondary school conditions. The work will be planned for those who have had technical preparation in agriculture. Lectures may be taken without laboratory work by special permission.

F. **The School.** Credit one or two hours. Lectures M W F, 9, Dairy Bldg. 222; repeated M W F, 11, Caldwell Hall 282. Laboratory M W, 2:00–4:30, repeated T Th, 2:00–4:30. Caldwell Hall 143. Assistant Professor TUTTLE.

This course is designed for those who are concerned with the teaching of natural history, agriculture, and home making in elementary schools. The work outlined in the New York State Syllabus for 1916–1917 will be used as it is developed in the Cornell Rural School Leaflet. Some of the phases of the work that will be discussed are: gardening in education; field trips; natural history collections; school apparatus; neighborhood studies; the school and the home; play in country districts; singing; dramatic entertainments; project work; school fairs; the school library; the school grounds; Arbor Day; Corn Day; Farmers' Week; and similar topics of interest to rural and elementary teachers, training class teachers, district superintendents, and others.

G. **School and Home Gardens.** Credit, one hour. Lectures and discussions M W F, 12, Caldwell Hall 282. Miss SIPE.

This course will emphasize the educational value of gardens, their relation to other departments of school activities; the garden as a laboratory for nature study; class management; vacation gardens; supervision of school and home gardens, and the many problems that arise in the establishment and management of children's gardens.

Teachers planning to teach elementary agriculture and school gardening or those entering upon supervisory work will find it a practical course. Weekly conferences will be held for the discussion of individual problems.

This course is open only to students who are taking Course A in the department of Vegetable Gardening or have completed its equivalent. Those registering for it are also required to take Course C in Soil Technology, Course C in Landscape Art, and Course A in Floriculture.

Miss Sipe will be in room 282 in Caldwell Hall during registration days to advise with students.

Those desiring further information in advance of the opening of the summer school may write Geo. A. Works, Ithaca, N. Y.

O. **Principles and Methods of Home Project Work in the Elementary School.** Credit, two hours. Lectures daily except S, 9. Caldwell Hall 282. Professor GRIFFIN.

This course will include the study and discussion of the principles of home project work as applied to elementary agriculture and home economics, the methods to be employed in organizing and supervising such work, and the subject matter to be considered in the school and home study of the projects.

The course will be based upon lectures, discussions, and reports on assigned readings.

RURAL ENGINEERING

C. **Farm Mechanics.** Credit, two hours. Lectures, T Th, 11. Caldwell Hall 282. Laboratory T Th, 2–4:30; S, 8–10:30. Rural Engineering Building. Professor RILEY.

A study of the practical application of the simpler phases of mechanics to agriculture. Laboratory exercises will be given in knots and rope splicing, belt lacing, pumps, hydraulic rams, water supply systems, internal combustion engines, spray machinery, tillage implements, mowers, and grain binders. Laboratory fee $2.

SOIL TECHNOLOGY

C. **Soils.** Three periods. Credit, one hour. Lectures, T Th, 10. Laboratory and demonstrations, S, 8–10. Caldwell Hall 143. Assistant Professor BUCKMAN.

This course is not open to regular students in the college nor will students taking this course be permitted to apply it toward credit on any regular course of the department.

A practical, fundamental course in soils. The subject will be handled with special reference to the needs of those expecting to teach soils in secondary schools. The lectures will include a discussion of the formation and classification of soils, tilth, soil moisture, soil biology, soil amendments, manures and fertilizers, and practical soil management. The round-table once a week will give opportunity for questions and practical discussions.

VEGETABLE GARDENING

A. **Vegetable Gardening.** Credit, two hours. Lectures daily, 11. Poultry Building 325. Laboratory, M W, 8–10:30, Vegetable Gardens, East Ithaca. Mr. SCHNECK and others.

This course is planned primarily to meet the requirements of those interested in school and social service work in vegetable gardening, as well as of the mateur gardener.

The location, planning, and management of a garden; seed and seed handling; growing early plants; special requirements of the various vegetable crops; and insects and diseases will receive consideration.

The laboratory work includes actual practice in the garden. Each student is assigned a plot on which he will plant and care for throughout the course the vegetables which are best suited for amateur gardens.

Laboratory fee $3.00.

OFFICIAL PUBLICATIONS OF CORNELL UNIVERSITY

Issued at Ithaca, New York, monthly from July to November inclusive, and semi-monthly from December to June inclusive.

[Entered as second-class matter, August 31, 1910, at the post office at Ithaca New York, under the Act of July 16, 1894.]

These publications include:

The Annual Register (for the year 1915–16, published January 1, 1916), price 50 cents.

Book of Views, price 25 cents.

Directory of Faculty and Students, Second Term, 1915–16, price 10 cents, and the following informational publications, any one of which will be sent gratis and post-free on request. The date of the last edition of each publication is given after the title.

General Circular of Information for Prospective Students, December 15, 1915.

Announcement of the College of Arts and Sciences, April 15, 1916.

Announcement of Sibley College of Mechanical Engineering and the Mechanic Arts, January 15, 1916.

Announcement of the College of Civil Engineering, March 15, 1916.

Announcement of the College of Law, June 1, 1915.

Announcement of the College of Architecture, August 1, 1915.

Announcement of the New York State College of Agriculture, July 1, 1915.

Announcement of the Winter Courses in the College of Agriculture, September 1, 1915.

Announcement of the Summer Term in Agriculture, April 1, 1916.

Announcement of the New York State Veterinary College, May 1, 1916.

Announcement of the Graduate School, February 1, 1916.

Announcement of the Summer Session, March 1, 1916.

Annual Report of the President, November 1, 1915.

Pamphlets on prizes, samples of entrance and scholarship examination papers, special departmental announcements, etc.

Announcement of the Medical College may be procured by writing to the Cornell University Medical College, Ithaca, New York.

Correspondence concerning the publications of the University should be addressed to

The Secretary of Cornell University,
Ithaca, New York.